National Park Service

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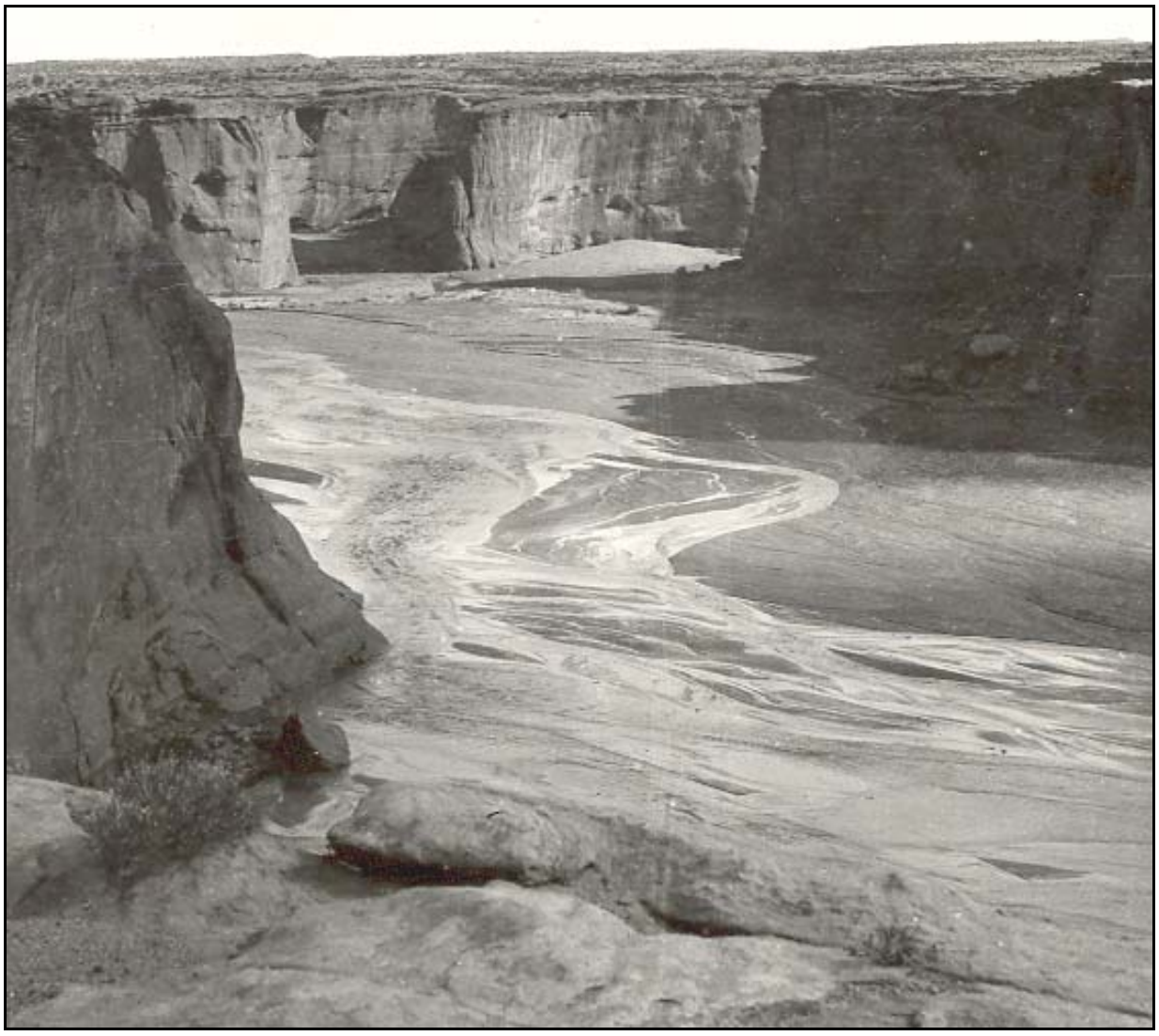
U.S. Department of the Interior



CANYON DE CHELLY NATIONAL MONUMENT

RESOURCE MANAGEMENT, SCIENCE

and STEWARDSHIP NEWS

ISSUE NUMBER 1 SPRING 2005

June1, 2005

-Greeting from Superintendent Scott Travis

Welcome to our first *Resource Management and Science Newsletter* from Canyon de Chelly National Monument! I hope you find this first quarterly newsletter informative and of interest. My staff has summarized several of the programs and efforts that have taken place over the course of the last few months as well as those that the park and our partners are embarking on this summer. You can find additional information on the park's website at http://www.nps.gov/cach. Please do not hesitate to contact the park regarding these programs and your interest in them. The park will continue to strive to protect and preserve the heritage of the Navajo people and other Native American communities and their members. I hope to see you soon and often throughout the park-have a safe and enjoyable summer season.

-Scott

❖ *Winter Relief Aid and Spring Floods*
In northern Arizona, where storms hit the hardest in the state this winter, significant amounts of heavy, wet snow fell in the alpine regions where the snow pack was already deep and soils saturated by heavy rainfall. The severe weather made remote dirt roads impassable and cut off tribal members from food and medical supplies throughout the reservation. There were numerous requests to the park and surrounding partners for emergency aid where many families were without electricity and phone service and reporting a shortage of food, wood, water and livestock feed. Canyon de Chelly National Monument itself was closed periodically for tours due to weather conditions and participated throughout the winter delivering food and supplies from Black Rock to Kayenta.

The frequency and duration of rain continued throughout the spring. This not only resulted in unusually high waters thought the canyon systems, but also presented an increased risk to visitors experiencing the canyon via motor vehicles. In order to ensure visitor safety and prevent resource damage within the park, the Park Superintendent communicated weekly with the Bureau of Reclamation and Navajo Nation Dam and Safety regarding conditions of the watershed. The park found it necessary at times to implement park closures to vehicle tours in the bottom of the canyons and urged safety and appropriate precautions for all hiking tours. The park continues to monitor the water levels though the US Geological

Survey's Gauging Station at the mouth of the canyon. You can access this site and receive daily updates at http://waterdata.usgs.gov/az/nwis/rt and by moving the cursor to the Chinle area on the map.

❖ *Watershed Restoration Project*

To address deterioration of critical park resources and the traditional farms of Canyon de Chelly's community, the National Park Service, the Navajo Nation, Natural Resources Conservation Service, U.S. Geological Service, and Colorado State University have initiated two projects to preserve the historical farming landscape and orchards of the canyon floor. Invasive plant infestations have seriously altered stream processes creating unnatural rates of channel incision and land erosion, and have consequently reduced land areas available for traditional farming, impacted road corridors and compromised the integrity of the canyon. In addition, natural biological diversity has been significantly reduced along the riparian corridor, which is important for maintaining the natural ecology of the canyons as well as traditional and ethnological uses.

In April, the park announced the release of an Environmental Assessment that delineates management options for tamarisk and Russian olive management in the entire Canyon del Muerto and Canyon de Chelly systems.

The Superintendent met with nearly sixty canyon residents to discuss the Environmental Assessment and the future restoration of canyon farmlands. Copies of the document were distributed and methods and timeframes for the project were discussed. Another update will be provided in early July.

The park also implemented Russian olive and tamarisk removal for fire safety purposes at the Visitor Center and western park Chinle Wash area in coordination with the Lake Mead Exotic Plant Management Team the week of April 4th. Assistance from the Mesa Verde National Park and a park-hired local Chinle Fire/Search and Rescue/ Exotic Plant Team facilitated burning and clean-up. After the process, nearly sixty cords of wood were distributed to the local community at no charge.

Associated with the park's restoration efforts is the *Canyon Farms Preservation Project*, which integrates traditional ecological and historical knowledge of the canyon community with a number of old and new strategies. Much of this traditional knowledge focuses on effective use of water, observing and maintaining conditions favorable to native plants, and reestablishing community participation. Superintendent Travis and park staff have already spent several hundred hours meeting with canyon residents about this project. Widely ranging opinions expressed at these meetings reveal that one view is clear—most

strongly favor the return of sustainable farms and orchards to the canyons.

Considering how closely the peach trees are tied to the historical memory of the *Diné* at Canyon de Chelly, the National Park Service maintains a special obligation to ensure their environmental survival. These projects demonstrate that efforts to document and preserve the historic farming landscape and orchards of Canyon de Chelly can also embrace concepts that will sustain away of life and environment well into the future. *(See more on this summer's specific projects at the end of this document.)*

❖ *Earth Day and International Migratory Bird Day*

This year the park organized two events to usher in the spring season. Earth Day clean-up activities resulted in over one ton of trash being removed from the rims of the park and the Chinle Wash area. In addition, exotic weeds such as rip-gut brome, cheatgrass, and knapweed were removed from the Visitor Center area.

Park staff and local volunteers led bird hikes into the canyon as part of a nationwide celebration of Migratory Bird Day on May 14. Interested visitors and local residents participated in observing over thirty species of canyon birds this year.

❖ *Cultural Resources*

The cultural resource program continues to build upon the comprehensive archeological and historical landscape surveys of Canyon del Muerto. The Park Historian is working on a project that includes oral histories of canyon residents as well as a comprehensive examination historic Navajo architecture. The staff is undertaking a landscape stabilization project at the White House Ruin area. In addition, park archeologists are also working diligently to survey and clear the necessary compliance for projects such as wells in canyon farmsteads, South Rim Road Paving, the Indian Health Service Waterline Project and NTUA powerline clearances.

❖ *Park Planning Projects*

Canyon de Chelly National Monument is made up of a wide variety of plant communities representative of the Colorado Plateau and because it contains burnable vegetation, it is required to have a Fire Management Plan. In 2004, the National Park Service, the Bureau of Indian Affairs Navajo Region, and the Navajo Nation Branch of Forestry, notified the public that the interagency cooperative group was in the process of preparing an Environmental Assessment in support of a comprehensive plan for the Navajo Nation and Cultural and NPS units within Navajo Nation. The NPS units included Canyon de Chelly, Chaco Canyon National Historical Park, Hubbell Trading Post National Historic Site, and Navajo National Monument. The comprehensive interagency planning document and associated

Environmental Assessment is in draft form and will be completed in FY ’06.

Completion of an interim fire plan that addresses the immediate suppression of wildland fire is critical to the management and preservation of park resources. The following summarizes short-term fire management needs:

- Guide the decision-making process where safety, social, political, and resource values are evaluated, and appropriate management strategies are identified for wildland fires.
- Provide a framework to be able to plan and implement a wildland fire program across agency boundaries.

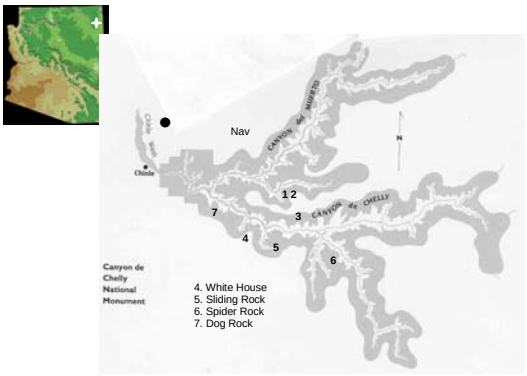
More on the park fire plan can be viewed at http://www.nps.gov/cach.

❖ *Meet the Researchers*

This summer, as you travel the throughout the canyon, you will see a variety of research projects being conducted. Most of the researchers are college students from Colorado State University as well as our own local *Diné* College.

Project 1.

Three main plant activities will occur this summer; monitoring seed traps, monitoring wells, and measuring plant abundance and diversity inside the removal sites.



In order to collect data pertaining to the plant community, the scientists will be using several different methods to collect information.

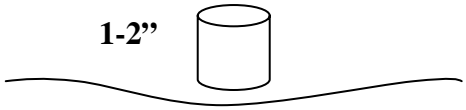
One important aspect of the plant community is the seed production. To assess what seeds are dispersing where, they will be placing seed traps in the removal sites to collect and measure “seed rain”.

Traps are constructed using a fence post with a horizontal piece of plywood attached to the top of the post. The plywood will be painted with a sticky substance that will catch airborne seeds.

By counting the seeds that land on the trap we will learn what kinds of plants are disbursing airborne seeds, when, and how many.

Project 2.
Vegetation changes have dramatically altered the appearance of this cultural landscape and seriously threaten valuable and irreplaceable archeological resources through excessive erosion and/or establishment of excessive woody fuels and increased fire hazards. In each of the sites, several small wells will be inserted to determine the depth of the ground water. The wells will stick out of the ground just a few inches and will be painted a cream-color in order to blend in to the environment. These wells determine how the ground water fluctuates during the summer in different areas in each of the plant removal sites.

Ground Water Well



Project 3.
To address changes in the channel morphology, specifically, channel cross-sectional geometry, elevation surveys along cross sections of the stream channel will be conducted before plant removal applications and annually after the removal applications for a three year period. Repeated surveys at the same cross section will allow scientists to track the changes in the channel shape as a result of erosion and deposition processes affected by the plant removal treatments. Surveys will be conducted at 50-meter intervals along the treatment reaches, which extend for approximately one kilometer of stream channel length. Each cross section will be marked in the field for easy identification during repeated surveys by hammering in a two-foot length of half inch diameter metal rebar at either end of the cross section. This rebar piece will be driven into the ground beyond the extent of potential channel change and can extend to the base of the canyon wall or at the base of a fence post or foot of a large tree. A small piece of orange flagging will be tied in the near vicinity of the rebar to aid in locating the rebar piece during repeat surveys.

In addition, sampling will occur to quantify the amount of sediment that is being transported within the treatment reaches both before and after the plant removal applications. Suspended sediment will be measured by taking water bottle samples, filtering out the sediment, drying the sample and then weighing it. Bedload (the sediment that is not in suspension but is transported along the channel bed) will be sampled and the contents dried and weighed. In order to correlate the amount of sediment in transport to stream flow, stream flow must be estimated wherever sampling occurs. To help estimate stream flow, water depth will be measured using staff gages made from dark green metal fence posts. The fence posts will be installed within the stream channel at 100-meter intervals within the six treatment reaches where the water depth can be measured at the location of each fence post.

Project 4.
In order to ensure that there are little or minimal impacts to birds and small mammals in the project area, expansive studies are being conducted on the rims and canyon bottoms of the park.

Staff and local volunteers are conducting surveys on endangered southwestern willow flycatchers and threatened Mexican spotted owls. Similar studies are being conducted on peregrine falcons, golden eagles and neotropical migrant bird species in order to continue the preservation of these species. All of these species are of concern to the Navajo Nation, the Park and to US Fish and Wildlife Service.

Later in the summer, terrestrial small mammal and bat inventories will take place throughout the park. The information collected will allow the park scientists to analyze any changes that may occur during the process of watershed restoration.

❖ *Soils Mapping and Road Assessment*
In late June, soil and road experts will be visiting the park to assess the stability of the roads and soils throughout the canyon. The first priority will be to analyze the road crossings in both canyon systems in order to make repairs and adjustments prior to the monsoon events and in order to sustain the roads throughout the next winter. In early fall, a soils analysis scientist will be available to interested canyon farmers to test soil chemistry and provide recommendations for soils improvement, crop suitability and rotation. The park will keep the canyon community informed as to when the scientists will be visiting the park.

❖ *All Taxa Biotic Inventory*
Canyon de Chelly will be implementing the first phase of an All Taxa Biotic Inventory this August. This inventory will provide baseline knowledge regarding avian, mammalian and invertebrate components of the ecosystem. Phase I will include a group of over 20 volunteer entomologists conducting terrestrial and aquatic invertebrate sampling in the watershed research plots. This phase will also include the training of local Dine College students in the skills associated with sampling.

More information on science and resource stewardship activities can be accessed on the Canyon de Chelly National Monument website at http://www.nps.gov/cach

. . we returned to the valley of the Chella [Canon de Chelly], which we found to be a wide rich valley . . . Their crop consists of wheat, Indian corn, beans, pumpkins and mellons. They have also fine peaches that grow abundantly and of a superior quality.

—INDIAN AGENT HENRY L. DODGE, *SANTA FE WEEKLY GAZETTE,*

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